



JULY 26 2000

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	09/494,282
		Filing Date	January 18, 2000
		First Named Inventor	Sergey A. Selifonov
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	02-028930US

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number	Kind Code (if known)			

FOREIGN PATENT DOCUMENTS								
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appeal	T
		Office	Number	Kind Code (if known)				

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS							
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.					T
A	AA	STEMMER (1994) "DNA shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution" Proc. Natl. Acad. Sci. USA vol. 91, pp 10747-10751					
	AB	VENKATASUBRAMANIAN et al., (1995) "Evolutionary Design of Molecules with Desired Properties Using the Genetic Algorithm" J. Chem. Inf. Comput. Sci. vol. 35 pp. 188-195					
	AC	SINGH et al., (1996) "Application of Genetic Algorithms to Combinatorial Synthesis: A Computational Approach to Lead Identification and Lead Optimization" J. Chem. Inf. Comput. Sci vol. 118 pp 1669-1676					
	AD	HARAYAMA, SHIGEAKI, (1998) "Artificial evolution by DNA shuffling" Tibtech vol. 16 pp 76-82					
C	AE	ZHANG, CHING (1994) "A Genetic Algorithm for Molecular Sequence Comparison" Proceedings of the International Conference on Systems, Man, and Cybernetics pp 1926-1931					

Examiner Signature	<i>[Signature]</i>	Date Considered	1/25/03
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

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JC152

Complete if Known

Application Number	09/494,282
Filing Date	January 18, 2000
First Named Inventor	Sergey A. Selifonov
Group Art Unit	1631
Examiner Name	Zhou S.
Attorney Docket Number	02-028930US

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code (if known)		
A	AA	5,023,171		Ho et al.	06-11-1991

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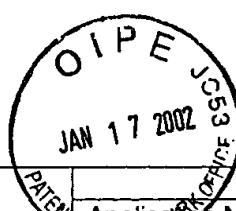
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
A	AB	WO	91/06643	A1	Majesty (Her) In Right of Canada	05-16-1991		
A	AC	WO	96/16073	A2	Terrapin Technologies, Inc.	05-30-1996		
A	AD	WO	96/16073	A3	Terrapin Technologies, Inc.	05-30-1996		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
A	AE	Dewey et al. (1998) "Non-equilibrium Thermodynamics of Molecular Evolution." <i>J. Theor Biol.</i> 193:593-599	
A	AF	Morchio et al. (1997) "Simulation of Protein Evolution: Evidence for a Non-linear Aminoacidic Substitution Rate." <i>Riv Biol</i> 83-94	

Examiner Signature	<i>Sh Zhou</i>	Date Considered	<i>1/25/03</i>
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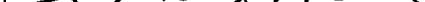
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STATEMENT BY APPLICANT		First Named Inventor	Sergey A. Selifonov
		Group Art Unit	1631
		Examiner Name	Zhou S.
(use as many sheets as necessary)		Attorney Docket Number	02-028930US

U.S. PATENT DOCUMENTS

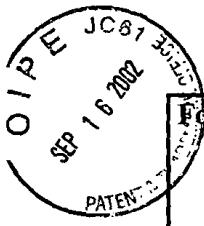
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Page 1 of 1


Form 1449 (Modified)
**Information Disclosure
Statement By Applicant**

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Atty Docket No.
MXGNP001X1
Applicant:
Selifonov et al.
Filing Date
January 18, 2000

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Application No.:
09/494,282

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U.S. Patent Documents

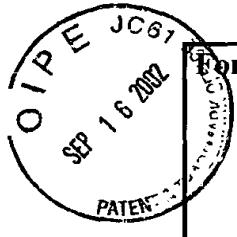
Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
A	A1	6,125,331	9/26/00	Toh			
A	A2	6,403,312	6/11/02	Bassil, et al			
	A3						

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
A	B1	WO00/47612	8/17/00	WIPO				
	B2	WO01/61344	8/23/01	WIPO				
	B3	WO00/42559	7/2/00	WIPO				
A	B4	WO01/75767	10/11/01	WIPO				

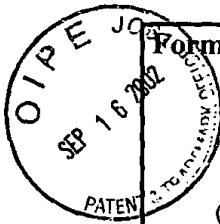
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	C2	Su et al., "Coupling Backbone Flexibility and Amino Acid Sequence Selection in Protein Design," Protein Science, 6:1701-1707, (1997)
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<i>(A)</i>	C5	Martin van Heel, "A New Family of Powerful Multivariate Statistical Sequence Analysis Techniques," <i>J. Mol. Biol.</i> , 220:877-887 (1991)
	C6	Goldman et al., "Estimating Protein Function From Combinatorial Sequence Data Using Decision Algorithms and Neural Networks," <i>Drug Dev. Research</i> 33:125-132 (1994)
	C7	Gustafsson et al., "Exploration of Sequence Space for Protein Engineering," <i>J. Mol. Recognit.</i> 14:308-314 (2001)
	C8	Miyazawa et al., "Residue-Residue Potentials with a Favorable Contact Pair Term and an Unfavorable High Packing Density Term, for Simulation and Threading," <i>J. Mol. Biol.</i> , 256:623-644 (1996)
	C9	Chao Zhang, "Extracting Contact Energies From Protein Structures: A Study Using a Simplified Model," <i>Proteins: Structure, Function, and Genetics</i> , 31:299-308 (1998)
	C10	Miyazawa et al., "Self-Consistent Estimation of Inter-Residue Protein Contact Energies Based on an Equilibrium Mixture Approximation of Residues," <i>Proteins: Structure, Function, and Genetics</i> , 34:49-68 (1999)
	C11	Miyazawa et al., "An Empirical Energy Potential With a Reference State for Protein Fold and Sequence Recognition," <i>Proteins: Structure, Function, and Genetics</i> , 36:357-369 (1999)
	C12	Moore et al., "Predicting Crossover Generation in DNS Shuffling," <i>PNAS</i> , Vol. 98, No. 6, 3226-3231 (2001)
	C13	Lehman et al., "Engineering Proteins for Thermostability: the Use of Sequence Alignments Versus Rational Design and Directed Evolution," <i>Current Opinion in Biotechnology</i> , 13:371-375 (2001)
	C14	Colleen Kelly, "A Test of the Markovian Model of DNA Evolution," <i>Biometrics</i> 50, 653-664, (1994)
	C15	H.W. Hellinga, "Rational Protein Design: Combining Theory and Experiment," <i>Proc. Natl. Acad. Sci. USA</i> , Vol. 94, pp. 10015-10017, (1997)
<i>(C)</i>	C16	William F. DeGrado, "Proteins from Scratch," <i>Science</i> , Vol. 278, 80-81 (1997)



Form 1449 (Modified)

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MXGNP001X1Applicant:
Selifonov et al.Filing Date
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	C18	Sjostrom, et al, "Signal Peptide Amino Acid Sequences In <i>Escheruchua coli</i> Contain Information Related To Final Protein Localization. A Multivariate Data Analysis", The CMBO Journal vol. 6, no. 3, pp 823-831, (1987)
	C19	Patel, et al, "Patenting Computer-Designed Peptides", Journal Of Computer-Acid Molecular Design 12 pp543-556, (1998)
	C20	Schneider, et al, "Peptide Design by Artificial Neural Networks and Computer-Based Evolutionary Search", Proc. Natl. Acad. Sci. USA, vol. 95, pp. 12179-121184, October 1998
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<i>A</i>	C23	Darius, et al, "Simulated Molecular Evolution" Or Computer-Generated Artifacts?", Biophysical Journal, Vol. 67, pp. 2120-2122, November 1994

Examiner

Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Form 1449 (Modified)		Atty Docket No. MXGNP001X1	Application No.: 09/494,282
Information Disclosure Statement By Applicant		Applicant: Selifonov et al.	
(Use Several Sheets if Necessary)		Filing Date January 18, 2000	Group 1635

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
W	A1	6,455,254	9/24/02	Short			
	A2						
	A3						

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	B1							
	B2							
	B3							
	B4							

Other Documents

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Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication	OCT 11 2002
	C1		TECH CENTER 1600/2900
	C2		
	C3		
	C4		
Examiner		Date Considered	1/20/03

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**Information Disclosure
Statement By Applicant**

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Atty Docket No. MXGNP001X1/0124.410US Application No.: 09/494,282
Applicant: Selifonov et al.
Filing Date January 18, 2000 Group 1631

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
A1							
A2							
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A5							NOV 25 2002
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A8							TECH CENTER 1600 2900

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Foreign Patent or Published Foreign Patent Application

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							Yes	No
B1								
B2								
B3								
B4								
B5								

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
✓	C1	Moore et al., <u>Modeling and Optimization of DNA Recombination</u> , Computer and Chemical Engineering 2000, Department of Chemical Engineering, The Pennsylvania State University, University Park © 2000
✓	C2	Gregory L. Moore, Costas D. Maranas, <u>Modeling DNA Mutation and Recombination for Directed Evolution Experiments</u> , Department of Chemical Engineering, The Pennsylvania State University, University Park, Received 28, October 1999, Accepted in revised form 15 April 2000 © 2000 Academic Press
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